

REMARKS

The examiner has objected to the specification because the specification lacked figure descriptions for FIGS. 7A-1, 7A-2, 7B-1, 7B-2, 7C-1 and 7C-2. The applicant has amended the specification to include figure descriptions for the noted figures.

The examiner has objected to the abstract for exceeding the 150 word limit. The applicant has replaced the abstract.

The examiner has rejected claims 1, 3-6, 8-11, 15, 17-20, and 22-25 under 35 U.S.C 112 as being indefinite because it is unclear what is meant by a "securities processing system." An example of a securities processing system is described on page 2. In general, a securities processing system is any system that is used to process securities and to clear a securities transaction.

The examiner has rejected claims 5 and 19 under 35 U.S.C 112 due to lack of antecedent basis for "the organization" and "identified critical issues." The applicant has amended claims 5 and 19.

The examiner has rejected claims 15 to 28 under 35 U.S.C 112 due to the use of the term "button." An example of a "button" is given on page 13, lines 15-26. The applicant contends that in view of the context of the claim the term button is not indefinite.

The examiner has rejected claims 1-28 under 35 U.S.C 101 as being directed to non-statutory subject matter. The examiner asserts that:

"Claims 1-28 are directed to non-statutory subject matter because they lack any reference to technology. The Patent Office has taken the position that claims lacking any reference to technology are 'nothing more than [an] abstract idea which is not tied to any technological art and is not useful art as contemplated by the Constitution.' Ex parte Bowman, 61 USPQ2d 1669, 1671 (Bd. Pat. App. & Inter. 2001) ... The examiner suggests amending the claims to include some form of technology, such as a computer, etc. in the body of the claim. It is not sufficient to merely put such technology in the preamble."

The applicant disagrees with the examiner's assertion that claims 1-28 are directed to non-statutory subject matter under 35 U.S.C 101. 35 U.S.C. 101 defines

statutory subject matter as “any new and useful process, machine, manufacture or composition of matter, or any new and useful improvement thereto.” There is nothing prohibiting a process claim from containing language that can be performed “with the aid of the human mind”, or that requires a person to think to perform the method (*see* In re Musgrave 431 F.2d 882, 893, 167 USPQ 280, 289-90 (CCPA 1970), *see also* USPTO presentation titled 35 U.S.C. 101 Training Materials slides 17-21).

However, for a claim to be statutory under 35 U.S.C. 101, the process must produce a **"useful, concrete, tangible"** result. (*See* State Street Bank & Trust Co. v. Signature Financial Group Inc, 149 F.3d1368, 1374-75, 47 USPQ 2d 1596, 1602 (Fed. Cir. 1998); *see also* USPTO presentation titled 35 U.S.C. 101 Training Materials slides 9-12), copy attached.

The applicant's claims 1-28 produce a "useful, concrete, tangible" result and are therefore statutory under 35 U.S.C. 101. For example, claim 1 includes “developing an implementation plan, wherein the implementation plan includes at least one task associated with the at least one recommendation.” Such an implementation plan is a useful, concrete, and tangible result.

Claims 2-14 are dependent on claim 1 and further define results and embodiments of the method steps of claim 1.

Regarding claims 15-28, the examiner additionally states:

Claims 15-28 are directed to non-statutory subject matter because they contains functionally descriptive material that is not embedded in any form of tangible medium...

Independent Claim 15 is related to a “computer assisted diagnostic system” including a data tool program having the step of developing an implementation plan. As was the case in the State Street decision, the applicant's claim provides an apparatus (i.e., a computer assisted diagnostic system) producing a “useful, concrete, tangible” result (i.e. the implementation plan). In comparison, the claims in the State Street decision were to an apparatus and the end result produced by the apparatus (machine) as claimed was a share price. Therefore, claim 15 is

statutory under 101 because the condition of providing a useful, concrete, and tangible result is achieved.

In addition, *In re Mahony*, 421 F.2d 742, 745 (C.C.P.A. 1970) states “Appellant . . . intends the claims to cover the machine implementation of the process and not the mental implementation thereof. If the appealed claims accomplish that intent, . . . he will . . . have overcome the § 101 rejection, since the machine-implemented process is clearly statutory.”); *In re Musgrave*, 431 F.2d 882, 893 (C.C.P.A. 1970) (“All that is necessary, in our view, to make a sequence of operational steps a statutory ‘process’ within 35 U.S.C. 101 is that it be in the technological arts so as to be in consonance with the Constitutional purpose to promote the progress of ‘useful arts.’”). Claim 15 includes a computer assisted diagnostic system (e.g., a machine-implemented process) that is used to assist in developing an implementation plan, wherein the implementation plan includes at least one task associated with the at least one recommendation and is statutory subject matter for both the reasons discussed above in relation to claim 1 and based on the precedents established by *Mahony* and *Musgrave*.

It is believed that all of the pending claims have been addressed. However, the absence of a reply to a specific rejection, issue or comment does not signify agreement with or concession of that rejection, issue or comment. In addition, because the arguments made above may not be exhaustive, there may be reasons for patentability of any or all pending claims (or other claims) that have not been expressed. Finally, nothing in this paper should be construed as an intent to concede any issue with regard to any claim, except as specifically stated in this paper, and the amendment of any claim does not necessarily signify concession of unpatentability of the claim prior to its amendment.

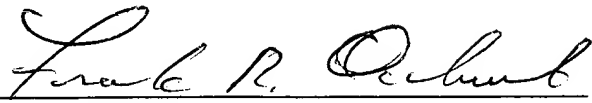
Enclosed is a \$420.00 check for the Petition for Extension of Time fee. Please apply any other charges or credits to deposit account 06-1050.

Applicant : Michael L. Beacham et. al.
Serial No. : 09/696,544
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Page : 18 of 18

Attorney's Docket No.: 12587-064001 / 01102-00/US

Respectfully submitted,

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Frank R. Occhiuti
Reg. No. 35,306

Fish & Richardson P.C.
225 Franklin Street
Boston, MA 02110-2804
Telephone: (617) 542-5070
Facsimile: (617) 542-8906

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35 U.S.C. 101 Training Materials

Presented by
Vincent Millin, Tariq Hafiz, Jim Trammell and
Robert Olszewski



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35 U.S.C. Section 101 reads:

"Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title."

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Translation:

35 U.S.C. 101 defines statutory subject matter as "any new and useful process, machine, manufacture or composition of matter, or any new and useful improvement thereto."

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Anything Under the Sun.....



The Supreme Court acknowledged that Congress, through legislative history, intended statutory subject matter to **"include anything under the sun that is made by man."** See *Diamond v. Chakrabarty*, 447 U.S. 303, 309; 206 USPQ 193, 197 (1980).

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Exceptions

Despite the apparent sweep of Section 101, the Supreme Court has specifically identified three categories of nonstatutory subject matter:

- laws of nature
- natural phenomena, and
- abstract ideas.

These are not categories of invention. See *Diamond v. Diehr*, 450 U.S. at 175, 209 USPQ 1 (1981).

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Mathematical Algorithms *per se*

Mathematical algorithms *per se* that stand alone and are not reduced to a practical application represent nothing more than an abstract idea.

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From Abstract Idea to Patentable Subject Matter

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Practical Application

When an abstract idea is reduced to
a practical application, the abstract
idea no longer stands alone if.....

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Useful, Concrete and Tangible

....the practical application of the abstract idea produces a **useful, concrete and tangible result**. This then satisfies the requirements of 35 U.S.C. 101. *In re Alappat.*, 31 USPQ 2d 1545, 1558 (Fed. Cir. 1994); *State Street Bank & Trust Co. v. Signature Financial Group. Inc.*, 47 USPQ2d 1596, 1601-02 (Fed. Cir. 1998).

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State Street Bank & Trust Co. v. Signature Financial Group Inc:



The Invention:

The patent claims recite a data processing system for implementing a hub and spoke investment structure to maximize return on investment while minimizing tax liability. The system transforms data, representing discrete dollar amounts, into a final share price using a machine (computer) that makes a series of mathematical calculations.

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State Street - The Bottom Line

The Courts held that a machine (computer) programmed to transform data which represents discrete dollar amounts into a final share price through a series of mathematical calculations does, in fact, constitute the practical application of a mathematical algorithm, formula, or calculation because it produces "a useful, concrete and tangible result" i.e. the final share price upon which investors and their brokers can make investment decisions. See *State Street*, 149 F.3d at 1374-75, 47 USPQ 2d at 1602.

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More on State Street

A process, machine, manufacture, or composition of matter employing a law of nature, natural phenomenon, or abstract idea may be patentable subject matter even though a law of nature, natural phenomenon, or abstract idea would not, by itself, be entitled to such protection. See *State Street*.

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AT&T Corp. v. Excel Communications, Inc.

The Invention:



The patent claims a process that uses Boolean algebra to derive a value that is used to generate a message record (PIC) of long distance telephone calls between subscribers and their call recipients, that value being used to create a signal useful for billing credit purposes when the caller and the call recipient both subscribe to the same long distance carrier.

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AT&T - The Bottom Line

The Court held that the claims constituted patentable subject matter under 35 U.S.C. 101 even though the billing value was derived using a simple Boolean mathematical principle. The Court noted that the patent does not claim the Boolean principle nor try to preclude its use in any other application, and that the "process applies the Boolean principle to produce a useful, concrete, tangible result without preempting other uses of mathematical principle." See *AT&T Corp. V. Excel Comm. Inc.* 50 USPQ2d 1447, 1452 (Fed. Cir. 1999). The useful result is lower long distance bills when calling people who use the same long distance service provider.

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What Does All This Mean??

An abstract idea by itself never satisfies the requirements of 35 U.S.C. 101.

However...

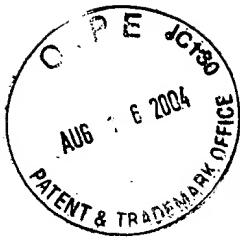
...an abstract idea when practically applied to produce a useful, concrete and tangible result satisfies Section 101.

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Can Have More than One Practical Application

Applicant may assert more than one practical application, but only one is necessary to satisfy the utility requirement under 35 U.S.C. 101.

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Steps carried Out in the Human Mind OK if Useful, Concrete and Tangible Result Produced

A method or process remains statutory even if some or all of the steps therein can be carried out:

- ❖ in the human mind
- ❖ with the aid of the human mind, or
- ❖ because it may be necessary for one performing the method or process to think. *In re Musgrave*, 431 F.2d 882, 893; 167 USPQ 280, 289 (CCPA 1970)

The key is that a useful, concrete and tangible result must be produced.

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The Test for Patent Eligibility

The fundamental test for patent eligibility is to determine whether the claimed invention produces a "useful, concrete and tangible result." The test for practical application as applied by the examiner involves the determination of the following factors:

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"Useful"

The Supreme Court in *Diamond v. Diehr* requires that the examiner look at the claimed invention as a whole and compare any asserted utility with the claimed invention to determine whether the asserted utility is accomplished. Applying utility case law the examiner will note that:

- (a) the utility need not be expressly recited in the claims, rather it may be inferred;
- (b) if the utility is not asserted in the written description, then it must be well established;
- (c) a specific, substantial and credible utility must be accomplished.

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"Concrete"

Another consideration is whether the invention produces a "concrete" result. Usually, this question arises when a result cannot be assured. An appropriate rejection under 35 U.S.C. 101 should be accompanied by a lack of enablement (35 U.S.C. 112 first paragraph) rejection, because the invention cannot operate as intended without undue experimentation.

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"Tangible"

Applying *In re Wamerdam*, 33 F.3d 1354; 31 USPQ2d 1754 (Fed. Cir. 1994), the examiner will determine whether there is simply a mathematical construct claimed, such as a disembodied data structure and method of making it. If so, the claim involves no more than a manipulation of an abstract idea and therefore, is nonstatutory under 35 U.S.C. 101. In contrast, a claimed computer-readable medium encoded with a data structure defines structural and functional interrelationships between the data structure and the computer software and hardware components which permits the data structure's functionality to be realized, and is statutory.

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Example of Useful, Concrete and Tangible

The disclosure describes a method for convening a group of people in a room and brainstorming to generate ideas for reducing the number of patent applications physically located in a particular Technology Center. After the ideas are generated, the best ideas are determined by multivoting within the group. Then, multivoting is again used to sequence the best ideas into a series of steps forming a scheme to reduce the number of applications. Finally, the steps of the scheme are implemented.

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Example (cont.)

Claim 1. A method comprising the steps of:

- (a) convening people in a room; and
- (b) brainstorming to generate a series of steps forming a scheme for reducing the number of patent applications pending in the Technology Center.

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Example (cont.)

Analysis of claim 1:

The claim merely manipulates an abstract idea without producing a "useful, concrete and tangible result." Claim 1 would be rejected under 35 U.S.C. § 101 as being directed to nonstatutory subject matter. C.f. *In re Schrader*, 30 USPQ2d 1455 (Fed. Cir. 1994) and *In re Wamerdam*, especially claims drawn to a method of making a disembodied data structure in *Wamerdam*.

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Example (cont.)

Claim 2. The method of claim 1, further comprising the step of:
(c) prioritizing ideas in formulating the scheme.

Analysis of claim 2:

Claim 2 does not produce a useful, concrete and tangible result. The claim is nonstatutory.

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Example (cont.)

Claim 3. The method of Claim 1, further comprising the step of:
(c) implementing the steps of the scheme.

Analysis of claim 3:

If the utility can be assured, then the method produces a concrete, tangible and useful result. If the result is speculative and it would require undue experimentation to produce the concrete result, claim 2 would be rejected both under 35 U.S.C. § 101 and § 112, 1st paragraph [lack of enablement].

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Functional vs. Non-Functional Descriptive Material

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Functional Descriptive Material

- *per se* is not statutory. C.f. *In re Wamerdam*, disembodied data structure claim.
- In combination with a computer readable medium so as to be capable of producing a useful, concrete and tangible result when used in a computer system is statutory i.e., a set of instructions in combination with a computer system. C.f. *In re Wamerdam* - data structure stored in a computer memory, and *In re Lowery*, 32 USPQ2d 1031 (Fed. Cir. 1994) - data structure in a computer readable medium.

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Translation:

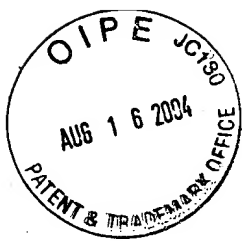
A claim to a computer readable medium encoded with functional descriptive material that can function with a computer to effect a practical application that results in a useful, concrete and tangible result (i.e. running an assembly line or executing a stock transaction) satisfies Section 101. See U.S. Patent 5,710,578 to Beauregard et al.

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Examples of Statutory Functional Descriptive Material

- A claimed computer-readable medium encoded with a functional data structure – this defines structural and functional relationships between the data structure and the hardware/software components. See *Wamerdam*.
- A claimed computer-readable medium encoded with a computer program - this defines structural and functional relationships between the computer program and the computer itself which allows the program's functionality to be realized provided that a useful, concrete and tangible result is realized. See U.S. Patent 5,710,578 to Beauregard et al.

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Non-Functional Descriptive Material

- *per se* is not statutory i.e. abstract idea
- Not statutory even if in combination with a computer-readable medium
 - ❖ No useful, concrete or tangible result is produced

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Examples of Non-Functional Descriptive Material

- | | |
|---------------------------|--------------------------------------|
| ■ Music | ■ Mere arrangements of facts or data |
| ■ Literature | ■ Share price on a disk |
| ■ Art | |
| ■ Photographs | |
| ■ Data base <i>per se</i> | |

These are merely stored to be read or outputted by a computer without any functional interrelationship, and thus do not impart functionality to the computer, i.e., they are not computer components.

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Examples of Non-Functional Descriptive Material *per se*

Sample Claim 1

A warranty comprising:
a first section describing what is covered by the warranty;
A second section describing what is not covered by the warranty.

A warranty is just descriptive material *per se*. The same applies for claim language such as "A contract comprising...", and "An invoice produced by a computer, the invoice comprising..." The claimed invention taken as a whole does not produce a useful, concrete and tangible result.

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Examples of Non-Functional Descriptive Material

Sample Claim 2

A data structure encoded on a computer readable medium comprising:
A first field having data of the age of a customer; a second field having data describing the products the customer buys; and a third field having a numeric value indicating the likelihood that the customer would buy similar products.

This is simply a data file – no functional change occurs when an application program uses the structural data. See *In re Lowery*.

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Data Structure - Definition

A data structure is a physical or logical relationship among data elements, designed to support specific data manipulation functions. See The New IEEE Standard Dictionary of Electrical and Electronics Terms 308 (5th Ed. 1993).

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Signals

IEEE has a plurality of definitions of a signal that include:

- A physical embodiment of a message
- A physical representation of data
- The physical representation which conveys data from one point to another

***Note that these definitions require a physical existence, however, physical existence does not equal physical structure**

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Signals

- Signals *per se* are not statutory subject matter.
- The combination of signals with statutory physical structure may be statutory subject matter if a useful, concrete and tangible result is produced. See Koo Patent, U.S. Patent Number: 5,568,202.

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Signals *per se*

- Have no tangible physical structure
 - ❖ a signal that is not tied to any physical structure for transmitting or receiving the signal
- Do not perform any useful, concrete and tangible result
- Do not constitute a tangible physical article or some form of matter
 - ❖ a signal that does not have any physical characteristics

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Signals

When a signal is coupled with or combined with a statutory physical structure to produce a useful, concrete and tangible result, the combination constitutes statutory subject matter.

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Signal Claims

Does PTO grant patents on signal claims?

Koo patent

- *U.S. Patent Number: 5,568,202*
- *Title: System for Echo Cancellation
Comprising an Improved Ghost Cancellation
Reference Signal*
- *Inventor: David Koo*
- *Assignee: North American Philips Corporation*

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Koo Patent Claim

Claim:

- An electronic reference signal in a system for minimizing the effects of ghosts occurring during the transmission and reception of a television signal over a communications path, wherein said reference signal is embodied in a processor readable memory, is non-cyclic, has a substantially flat frequency response within the bandwidth of said communications path and has a plurality of substantially uniform amplitude peaks over a time interval, and wherein a replica of said reference signal is transmitted as part of said television signal and is utilized by a decoder to derive coefficients which are used with at least one filter to remove said ghosts.

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Koo Patent (Continued)

Prosecution History of Koo Patent

- Board of Patent Appeals and Interferences affirmed examiner's rejection of two-hump signal claims as being non-statutory under Section 101.
- Koo appealed to the Federal Circuit
- Case remanded to PTO to permit Koo to amend claims to incorporate signal in computer-readable memory

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Signal Example

Claim 1

An assembly of transmitted signals wherein said signals carry encoded instructions to be read by a receiver; said assembly of signals arranged to be transmitted to a receiver.

Claim Analysis

The claim calls for an assembly of signals *per se* and is nonstatutory. The scope of the claim only intends the signal to be transmitted to a receiver – there is no combination of the signal with statutory physical structure (the transmitter is not actually claimed)

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Signal Example

Claim 2

A reference signal containing an arrangement of information; said reference signal is embodied in a processor readable memory.

Claim Analysis

The example may be statutory if the signal is in combination with a physical statutory structure (the readable memory) and a useful, concrete and tangible result is provided. Claims to data structure (signals) stored in a memory are statutory subject matter because of the statutory nature of the memory. *In re Lowry*, 32USPQ2d 1031 (Fed. Cir. 1994).

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How Case Law has Changed

In re Schrader., 30 USPQ2d 1455
(Fed. Cir. 1994)

Case Summary in 1994 Decision

The claims in *Schrader* are directed to a method of competitively bidding on a plurality of related items, such as contiguous tracts of land. The CAFC concluded that the claims were properly rejected for lack of statutory subject matter under Section 101.

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The CAFC in *Schrader* Stated....

Their reasoning being that a mathematical algorithm was implicit in the claims which, even though it may not have implied any more than a step of summing, describes the solving of a mathematical problem and since the algorithm is not applied to or limited by physical elements or process steps, no physical change, effect or result occurred. Thus, this was insufficient to impart patentability. See *Schrader*.

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Then State Street Came Along...

After the 1998 *State Street* decision, the CAFC in *AT&T v. Excel Communications*, 50 USPQ2d 1447, 1453 (Fed. Cir. 1999) took the opportunity to comment on the Court's prior decision in *Schrader*.

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The CAFC in AT&T Stated...

The Court in *Schrader* did not focus on "whether the mathematical algorithm claimed was applied in a practical manner since it ended its inquiry before determining whether a **useful, concrete and tangible** result ensued. Thus, in light of our recent understanding of the issue, the *Schrader* court's analysis is as unhelpful as...". See *AT&T v. Excel Communications*, 50 USPQ2d at 1453 (Fed. Cir. 1999).

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Useful, Concrete and Tangible is the Test

The Bottom Line:

Useful, concrete and tangible is the current test for satisfying the practical application requirements of Section 101 with respect to computer-implemented inventions.

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Use the 101 Help Panel

If you have any questions – ask the
101 help panel!



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